



Hawk

**OPERATING MANUAL
FOR**

**DWELL
TACHOMETER**

MODEL 742

Limited Warranty

Cal Custom/Hawk, a Division of Cal Custom Accessories, Inc., 23011 S. Wilmington Ave., Carson, Calif. 90745, hereby warrants, subject to the terms and conditions set forth below, that for a period of five years from the date of original purchase at retail (the Warranty Period), it will repair or replace any Hawk product manufactured by it which proves to be defective under normal use and service in workmanship or material.

Cal Custom/Hawk's obligation under this Warranty is limited to the repair or replacement of the product, at its option, without charge for parts or labor, at its plant located at the above address in Carson, Calif., when the product is returned to the factory with shipping charges prepaid and examination of the product shall disclose it to have been defective in the respects aforesaid during the Warranty Period. The repairs or replacement will be made promptly and, in any event, within not more than fifteen (15) regular business days after receipt of the unit at the factory of Cal Custom/Hawk. No warranty services will be performed on Saturdays or after 4:00 P.M. local time on other business days. Cal Custom/Hawk will return the repaired or replaced unit with shipping charges prepaid.

Coverage under this warranty is limited to the original purchaser of the product at retail. When requesting warranty service, proof of date of purchase must be submitted. The sales receipt or copy may be used for this purpose.

This warranty does not apply to any product which has been repaired or altered in any manner by anyone other than Cal Custom/Hawk, or if the defect, malfunction or failure of the product to conform to this Warranty was caused by damage (not resulting from defect or malfunction) while in the possession of the purchaser, or from unreasonable use, or from improper installation or application, or to any product which has not been maintained or used in accordance with the operating specifications set forth in Cal Custom/Hawk's written instructions.

The Warranty Period shall not be extended beyond its original term with respect to any part or parts repaired or replaced by Cal Custom/Hawk.

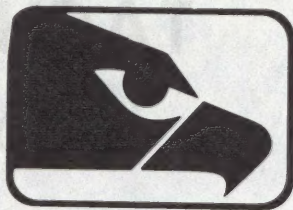
IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE LIMITED IN DURATION TO THE FIVE YEAR WARRANTY PERIOD SPECIFIED ABOVE EXCEPT IN THE FOLLOWING STATES IN WHICH SUCH LIMITATION IS UNENFORCEABLE: CALIFORNIA, WEST VIRGINIA, MASSACHUSETTS, MARYLAND, WASHINGTON, OREGON, MAINE.

UNDER NO CIRCUMSTANCES SHALL CAL CUSTOM/HAWK BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES FOR BREACH OF THIS WARRANTY OR OF ANY IMPLIED WARRANTY.

Cal Custom/Hawk neither assumes nor authorizes any person to assume for it any obligation or liability other than as herein expressly stated.

Cal Custom/Hawk, Inc.
23011 S. Wilmington Ave.
Carson, CA 90745

Hawk



GENERAL INFORMATION

Your new Hawk Tune-Up Tester utilizes a d'Arsonval meter, the most accurate and dependable type meter movement available. This most precise meter insures greater reliability and ruggedness. The latest solid state electronics assure years of trouble-free use.

TACHOMETER/DWELL CONNECTIONS: (FIG. 1)

On all Ignition Systems, the black lead should be connected to chassis or negative terminal of battery. The red lead should be connected as follows:
STANDARD IGNITION - (POINTS)

Connect red lead to distributor side of coil, either at coil or distributor points.

ELECTRONIC IGNITIONS

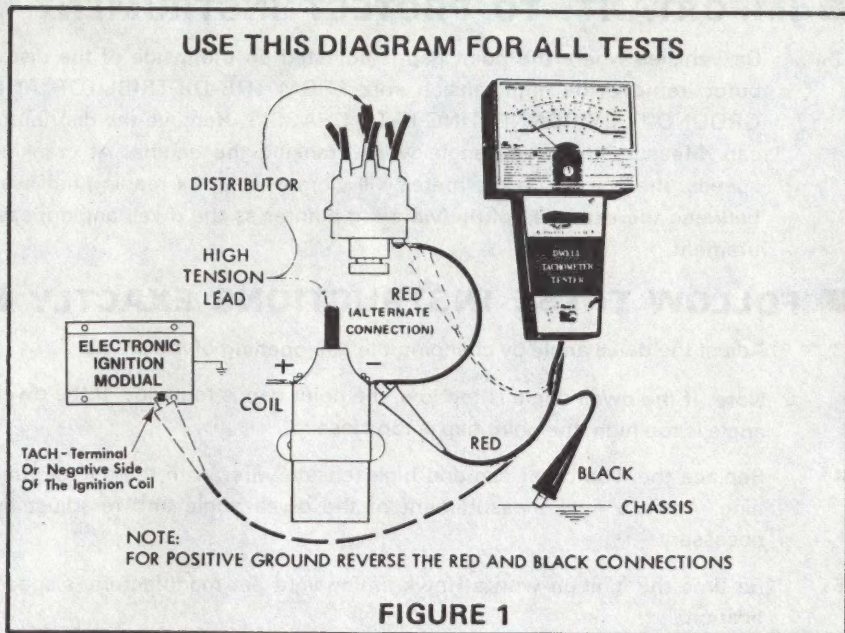
1. General Motors High Energy Ignition (HEI).—Connect red lead to tachometer terminal marked "TACH."
2. Ford (Motorcraft), Chrysler, American Motors (BID), International Harvester (I-H) and most Magnetic and Optic Coupled Transistorized Ignition Systems.—Connect red lead to negative side of coil or most convenient tie point from negative side of coil.
3. Capacitive Discharge Ignitions (CDI), Delta Mark Ten B, Compu-Spark.—Switch unit to conventional mode and connect red lead to negative side of coil. If unit does not have this feature, signal can be taken from points signal directly from distributor.

When reference is made to negative ground, this means that the minus (-) battery terminal is connected to the chassis. When the positive (+) terminal is connected to the chassis, this is referred to as positive ground.

This instrument is for 12 volt ignition system only.

ZERO ADJUSTMENT

Prior to hookup, hold your instrument in normal use position. If necessary, adjust screw on the face of the meter until pointer reads "0" on tach or 45°/60° on dwell scales.



DWELL TACHOMETER

The Dwell Tachometer is an essential tool for the tuneup and repair of any vehicle. The name of the instrument is basically a short form of two major functions that it performs; Cam Dwell Measurement and Idle Tachometer.

The Idle Tachometer function consists of:

- a. Adjusting Idle Speed
- b. Air Fuel Ratio Check
- c. Checking Cylinder Performance
- d. Centrifugal Advance Test
- e. Checking the Air Filter

The cam dwell test measures the action of the distributor breaker points and permits accurate adjustment to avoid misfiring during high speeds, acceleration, hill climbing or trailer towing. Accurate adjustment of the dwell angle also helps to prevent point burn-out and fosters easier starts. The test consists of adjusting the point gap through the measurement of dwell angle.

IDLE TACHOMETER FUNCTION

a. ADJUSTING IDLE SPEED

1. Before adjusting idle speed, the engine must be warm (normal operating temperature), the butterfly choke must be open and the fast idle cam in slow position. (Note: These are the normal positions for operating temperatures.)
2. Remove the air filter.
3. Adjust the cam idle screw to bring the idle speed to the RPM range specified by the manufacturer of your vehicle.

b. AIR FUEL RATIO CHECK

1. With the engine idling at manufacturer specified speed, perform the following:
2. Place a flat plate slowly over the air horn of the carburetor to partially choke off the intake of air. Note the RPM.

Results:

- a. Increase in engine speed indicates a lean mixture.
- b. Decrease in engine speed indicates a rich mixture.
- c. Little change until the air is almost completely shut off indicates an acceptable air-fuel ratio.

Note: The best adjustment of the idle fuel mixture can be obtained by using a Hawk Vacuum/Fuel Pump Tester in conjunction with the Idle Tachometer. The vacuum tester insures smooth engine operation at the most economical setting of air to fuel ratio.

c. CHECKING CYLINDER PERFORMANCE

1. Set engine speed at 1,000 RPM.
2. Short out each spark plug one at a time and note the decrease in RPM.

Results:

Those cylinders that are not performing at top efficiency, when shorted out, will have a lesser effect on overall engine speed (RPM).

d. CENTRIFUGAL ADVANCE TEST

1. Again operate the engine at normal idle speed.
2. Loosen the lock screw on the case of the distributor and rotate the distributor body, left or right, until maximum engine speed is obtained.
3. Increase the engine speed to 1,000 RPM and again try to increase the speed by rotating the distributor body.

Results:

If the engine speed can be increased more than 100 RPM in Step 3, then the centrifugal advance mechanism is not operating correctly.

4. Re-time the ignition with a Hawk timing light per manufacturer's specifications.

e. CHECKING THE AIR FILTER

1. Remove the air filter if not done previously.
2. Again, with the engine idling at manufacturer's specified speed, replace the air filter.

Results:

Any reduction in RPM indicates a dirty or damaged air cleaner.

CAM DWELL TESTER FUNCTION

CAM DWELL ANGLE MEASUREMENT (Point Gap)

1. The distributor in some vehicles has an Allen screw fitting so that the Dwell Angle (point gap) can be set from the outside of the distributor while the engine is running. On these vehicles, simply lift the window protecting the Allen screw and adjust the angle to the manufacturer's specification while observing the meter

IMPORTANT: TO PROTECT INSTRUMENT

2. On vehicles where the point gap is adjusted on the inside of the distributor, remove the high tension wire FROM THE DISTRIBUTOR AND GROUND IT BY CONNECTING IT TO CHASSIS. Remove the distributor cap. Measure the dwell angle while cranking the engine. At cranking speeds, the pointer on the meter will vibrate. Use the reading half way between the extremes of the vibrating pointer as the dwell angle measurement.

FOLLOW THESE INSTRUCTIONS EXACTLY

3. Adjust the dwell angle by changing the gap opening of the points.

Note: If the dwell angle is too low, the point gap is too wide. If the dwell angle is too high, the point gap is too close.
4. Replace the distributor cap and high tension wire. With the engine running, make a final measurement of the dwell angle and re-adjust as necessary.
5. Re-time the ignition with a Hawk timing light per manufacturer's specification.